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10/758,257

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Jean-Christophe Cayrou

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EXAMINER

TAKAOKA, DEAN O

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/758,257

Applicant(s)

CAYROU ET AL.

Examiner

Dean O. Takaoka

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/16/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Specification*

The disclosure is objected to because of the following informalities:

The Summary of the Invention (page 5) is objected to because of the following informalities: The words "switch" (line 17; i.e. in which switch each output line portion includes); "in" (line 22; i.e. in series in) and "has" (line 23; i.e. which switch has an asymmetrical structure) (line 8) appear awkward and/or unclear.

The word "switch" used in the phrase is awkward. The word "has" used in the phrase appears ambiguous where the background recites two electronic components being identical and later reciting where the propagation channels are asymmetrical, thus it is believed by the Examiner that the deletion of the word "has" would place the phrase in a more correct syntax where switching would be directed to the asymmetrical structure (e.g. propagation channels) rather than to the identical electronic components (e.g. switches). Refer to objections of claim 1 below.

Appropriate correction is required.

### *Drawings*

I) Figures 1 – 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

II) The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore;

a) The "asymmetrical structure" and "quarter-wavelengths" (claim 1); "two components each constitute an open circuit" (claim 2); "Lab must be equal to an integer multiple of a half-wavelength" (claim 4), "Lab must be equal to an odd integer multiple of a half-wavelength" (claim 5), "Lac must be equal to an odd integer multiple of a quarter-wavelength" (claims 4, 5), "Lac must be equal to an odd integer multiple of a quarter-wavelength" (claims 4, 5) "Lbe must be equal to an odd integer multiple of a quarter-wavelength" (claim 5); "Lxy is the electrical distance between points X and Y (claims 4 and 5); and "Lcd must be equal to an integer multiple of a half-wavelength" (claims 4, 5) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Figures 4 – 6 show a generic circuit diagram which does not specific show the claimed details above.

b) Where "regardless of the state of the components, one of the two channels is open and the other channel is closed for electromagnetic signals." (claim 1).

The limitation where " one of the two channels is open and the other channel is closed for electromagnetic signals" in view of the limitation "regardless of the state of the components" suggests that switch components 4 and 4' may be either on or off. In the case of Fig. 4, when 4 is off and 4' is on, channels 1-2 and 1-3 are both non-

conducting or closed, thus for Fig. 4, both switches must be both on or both off at the same time. Similarly, in the case of Fig. 5 when 4 is off and 4' is off, channels 1-2 and 1-3 are both non-conducting or closed, thus for Fig. 4, only one switch may be on while the other is off at the same time to meet the limitation of claim 1, thus Figures 4 – 6 do not show corresponding switching conditions to meet the claimed details above.

c) X and Y (claim 4)

III Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claim 1 is objected to because of the following informalities: The words “switch” (line 4; i.e. in which switch each output line portion includes); “in” (line 7; i.e. in series in) and “has” (line 8; i.e. which switch has an asymmetrical structure) (line 8) are awkward and/or unclear.

The word “switch” used in the phrase is awkward. The word “has” used in the phrase appears ambiguous where claim 1 recites two electronic components being identical and later reciting where the propagation channels are asymmetrical, thus it is believed by the Examiner that the deletion of the word “has” would place the phrase in a more correct syntax where switching would be directed to the asymmetrical structure (e.g. propagation channels) rather than to the identical electronic components (e.g. switches). Refer to Specifications objections above.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 – 8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites the limitation where "regardless of the state of the components, one of the two channels is open and the other channel is closed for electromagnetic signals." The limitation where "one of the two channels is open and the other channel is closed for electromagnetic signals" in view of the limitation "regardless of the state of the components" suggests that switch components 4 and 4' may be either both be on (closed circuit) or both be off (open circuit), or one of the switches being on while the other is off.

In the case of same switching where 4 and 4' are both on at the same time or both off at the same time (where 4 and 4' are on or conducting; or where both 4 and 4' are off or open circuited), only Fig. 4 would meet this condition. When 4 is off (open circuit) and 4' is on (closed circuit), channels 1-2 and 1-3 are both non-conducting or closed, thus for Fig. 4, both 4 and 4' must be both be on or both be off at the same time.

In the case of alternate switching (where one of the switches 4 or 4' is on while the other switch is off), only Fig. 5 would meet this condition since both switches are configured in parallel to paths 1-2 and 1-3.

Because claim 1 recites any switching condition for the two electronic components (switches 4, 4') and further where one channel is open and the other is closed, the limitation "regardless of the state of the components, one of the two channels is open and the other channel is closed for electromagnetic signals" suggests both embodiments shown in Fig. 4 and Fig. 5, where the switching enabling Fig. 4 would not enable Fig. 5 or where the switching enabling Fig. 5 would not enable Fig. 4, thus claim 1 is not generic and is not described in the specification in such a way as to

enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In the interest of advanced prosecution, the rejections below are in view of either the embodiment shown in Fig. 4 comprising the same switching condition to both switches 4 and 4' (i.e. both on or both of) or the embodiment shown in Fig. 5 comprising complementary switching.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Weigand (U.S. Patent No. 5,990,580).

Claim 1:

Weigand shows a SPDT switch (abstract) comprising an input line portion (2) and two output line portions (3, 5) connected to the input line portion at a branch point (7) and defining with the input line portion two propagation channels for electromagnetic signals reaching the branch point via the input line portion, in which each output line portion (3 or 5) includes a two-state electronic component (where one of the FET switches 9 of the dual FET switches connected to node 3 and one of the FET switches 10 of the dual FET switches connected to node 5 are chosen respectively) constituting either a substantially open circuit or a substantially short circuit as a function of the



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application of an appropriate command and being in one of two states (e.g. on/off) in the absence of a command (col. 2, lines 28-30; where FETs 9 and 10 are conducting when unbiased at zero voltage, thus node 5 is conducting when unbiased) and two identical electronic components (depletion mode FETs) are each disposed in series or in parallel with one of the two output line portions which (in so far as can be understood) switch an asymmetrical structure, the two propagation channels differing in their configuration and/or in the parity of their electrical length expressed in quarter-wavelengths (where the electrical length to node 3 is defined by a single  $\lambda/4$  transmission line and the electrical length to node 5 is defined by two  $\lambda/4$  transmission lines) between the components and the branch point, so that regardless of the state of the components (in so far as can be understood), one of the two channels is open and the other is closed for electromagnetic signals (where when FETs 9 and 10 are both enabled, channel 2-3 conducts and channel 2-5 is closed; or in the alternative when FETs 9 and 10 are both off, channel 2-5 conducts and channel 2-3 is closed).

Claim 2:

Where the two components constitute an open circuit in the absence of command (col. 2, lines 28-30; where FETs 9 and 10 are non-conducting when unbiased at zero voltage).

Claim 6:

Where the electronic components are chosen comprising solid state components (Markush group; FETs).

Claims 1, 2, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Huttner et al. (U.S. Patent No. 5,856,713).

Claim 1:

Huttner et al. shows a SPDT switch (where each output is switchable) comprising an input line portion (18) and two output line portions (any two outputs 2 - 7) connected to the input line portion at a branch point (16) and defining with the input line portion two propagation channels for electromagnetic signals reaching the branch point via the input line portion, in which each output line portion includes a two-state electronic component (PIN diodes or FETs shown in Fig. 2 or Fig. 3) constituting either a substantially open circuit or a substantially short circuit as a function of the application of an appropriate command and being in one of two states (e.g. on/off) in the absence of a command (col. 4, lines 30-35; where discontinuation of bias current places the diodes in non-conducting states) and two identical electronic components (PIN diodes 24a and FETs – col.5, lines 61-63) are each disposed in series or in parallel with one of the two output line portions which (in so far as can be understood) switch an asymmetrical structure, the two propagation channels differing in their configuration and/or in the parity of their electrical length expressed in quarter-wavelengths (where in Fig. 2, output 4 is defined by a line  $\lambda/2$  between nodes 16 and one quarter wave line 46 thus comprising  $3\lambda/4$  in length; output 3 is defined by a two  $\lambda/2$  lines between nodes 16, 16 and 16B and one quarter wave line 46 thus comprising  $5\lambda/4$  in length, thus inherently being expressed in quarter-wavelengths) between the components and the branch point, so that regardless of the state of the components (in so far as can be understood), one of the two channels

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is open and the other is closed for electromagnetic signals (wherein Figs. 2 and 3 provides complementary switching to the shunt diodes (Fig. 2) or series/shunt FETs in each arm (Fig. 3), thus providing AB switching (col. 3, line 63 to col. 4, line 5) and (col. 5, line 57 to col. 6, line 43)).

Claim 2:

Where the two components constitute an open circuit in the absence of command (col. 4, lines 30-35; where discontinuation of bias current places the diodes in non-conducting states).

Claim 6:

Where the electronic components are chosen comprising solid state components (Markush group; diodes or FETs).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huttner et al. in view of Kim et al. (US Patent No. 5,872,491).

Huttner et al. teaches the switch, discussed in the reasons for rejection of claim 1 above, where the N-way divider of Huttner et al. shows identical dual outputs (Out 4 and 5; Out 3 and 6, et al.) where the outputs are selectable but does not specifically teach a

redundant switch or where the switch forms a device for switching two channels into one channel.

Kim et al. shows a similar N-way power divider combiner switch where the switch selection provides selectable redundant switching (abstract) forming a device for switching two channels into one channel (divider/combiner – Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switch disclosed by Huttner et al. with the N-way divider/combiner disclosed by Kim et al. Such a modification would have realized the advantageous benefit of providing a continuing operation of the switch system (Kim – abstract); further where both Huttner et al. and Kim et al. both teach N-way switch devices and further where Huttner et al. teaches the selectable function of the N-way switch thus suggesting the obviousness of the modification.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tateno – shows series and parallel switches.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dean O. Takaoka whose telephone number is (571) 272-1772. The examiner can normally be reached on 8:30a - 5:00p Mon - Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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June 10, 2005